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ABSTRACT

A transformation of public attitudes on the environment has resulted in more stringent standards on almost all school programs for hazardous waste management, air quality, groundwater, and emergency planning and response. A comprehensive environmental risk reduction and management policy should highlight the potential for environmental risks in school facilities, operations, and activities. Hazards examined range from natural threats such as radon to man-made contaminants such as pesticides, PCBs, asbestos, and lead in drinking water. Risk reduction is possible through a systematic management plan. A short article discussing the sensationalization by the news media of controversial environmental issues and biases of the press is included, and seven techniques board members and administrators can use to reduce public apprehension about environmental risk are briefly described. (SI)

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Updating SCHOOL BOARD POLICIES

Volume 20/Number 8/September 1989

A component of the Educational Policies Service of the National School Boards Association provided to NSBA Direct Affiliates and EPS subscribers

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Environmental policy—a priority for schools in the '90s

by Cathryn Ebrhardt

The list is long—and still growing. PCBs in electrical transformers. Lead in drinking water. Leaking underground storage tanks. Indoor air quality. Storage and disposal of toxic materials such as photocopier chemicals, used oil, paint, and cleaning supplies. Pesticides. Radon seeping through cracks in building foundations of older schools or up central air shafts of newer ones. Asbestos in floor tiles and building insulation.

Public awareness of and interest in environmental issues is at an all-time high. The environment is not just an issue for big industry. Like it or not, ready or not, the environment will continue to increase in importance for school systems nationwide.

In recent years public concern over environmental risk has made its mark on a number of wide-ranging state and federal laws. At first limited to pollution of the natural environment, the scope of environmental laws now reaches to human health, exposure risks, and the community's "right-to-know." These mandates call for schools and other public agencies to regularly inspect, report, monitor, and communicate the health hazards and environmental risks present in and around buildings to state and federal agencies as well as to local communities.

A transformation of public attitudes on the environment has resulted in more stringent standards being written into almost all programs for hazardous waste management, air quality, groundwater, and emergency planning and response. If school officials are not familiar with the acronyms SARA, RCRA, CERCLA, OSHA, and HSWA, they soon will be. Now schools must comply with state and federal regulations bearing these names.

School environmental responsibility extends to three areas:

- reduction or elimination of potential *sources* of risks to human health and the environment;
- responsible *consumption* of environmental resources;
- *education* of students and the community-at-large about environmental issues and the need for responsible management.

By adding an environmental risk reduction or management policy in areas such as safety program and building/grounds inspections or by developing a general policy under support services, school boards can establish clear priorities and strategies. For example, an environmental policy might require audits (e.g., of asbestos, lead, radon, indoor air quality) to help chart building and system-wide progress toward the goal of reducing risks to human health and natural resources.

[But an environmental policy can do more than ensure health and safety. Policies with broader scopes might promote resource conservation and recycling as well as school and community environmental education.]

A comprehensive plan to identify and reduce risks can establish school officials as leaders rather than as reactors to outside forces. Even in unregulated matters, schools can be under community pressure to minimize environmental risks to students and staff.

By tailoring a program to local needs and priorities, school boards should be better positioned to fund sound management plans. Otherwise, environmental policy might develop through crisis management if an inspection shows high levels of lead in drinking fountain water or repairs on athletic field light systems reveal PCBs.

Notes Robert Anderson, Montana School Board Association Executive Director, board members "have always been concerned about creating and maintaining a safe and healthy environment for our students and staff, but lately new safety issues have taken us by surprise. We need to take a more proactive approach, one that will protect our constituents' health and pocketbook, too."

Policies on environmental risk reduction or environmental management can accomplish the following objectives:

- set goals;
- define the positions of district-wide and school environmental managers;
- establish an environmental audit process where potential problem areas are identified and then specific sampling and testing procedures are conducted (Methods—protocals—must conform to state and federal law. Adequate budget resources should be provided if other state and federal assistance programs are unavailable.);
- describe timelines for policy implementation, monitoring, and review.

An environmental policy also allows boards to customize a communications plan to community needs as well as to federal and state public disclosure laws. Boards should consider cooperative relationships with other school systems, community agencies, and state and national environmental groups; these ventures can help schools maximize the return on resources by pooling and exchanges of not only information but equipment and staff.

Schools as sources of risk

The centerpiece of any environmental policy highlights the potential for environmental risks in school facilities, operations, and activities. From natural threats such as radon to man-made con-

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taminants such as pesticides, PCBs, asbestos, and lead in drinking water, risk reduction is possible through a systematic management plan.

Disagreements persist in the scientific community over the exact levels of chemical exposures that cause adverse health effects, or, conversely, what levels of exposure are safe, and what degree of risk is borne by students and staff as a result of today's "typical" pattern of chemical exposures in school buildings.

But few disagree that a concerted program to reduce risks where possible is not only sound environmental policy but good general management practice and common sense.

The first step of a risk reduction program is to conduct periodic, systematic environmental risk audits of school facilities. Similar to the surveys and inspections necessary to obtain liability and fire insurance, environmental audits (usually by outside experts or trained school personnel) identify areas of potential risk to human health and the environment and possible corrective actions.

Then school officials prioritize the problems, in part based on the costs of remediation, and develop an action schedule. In some cases risks can be reduced to near zero, for example, by switching to less toxic chemical or nontoxic alternatives. Other times, risk can be reduced but not eliminated. For example, if the school program offers chemistry, then laboratory chemicals are necessary. Nonetheless, safeguards reduce the chance of misuse or improper disposal.

Inside the school

Today schools are under the watchful environmental eye of local communities, state agencies, and federal officials. Federal regulations now govern in some way asbestos, toxic chemicals found in common school supplies, lead, PCBs in transformers and other electrical equipment, and radon gas. In some cases, states—working with minimum federal standards—are responsible for program development and enforcement.

Hazardous Materials and Waste Management. Environmental laws place special demands on schools in regard to many common chemicals and supplies.

Most schools, as producers of small quantities of hazardous wastes (e.g., solvents, cleaners, paint thinners, vehicle supplies) are subject to the Resource Conservation and Recovery Act (RCRA). [In 1985 the EPA lowered the overall threshold for hazardous waste generation to 220 pounds or more per month, making many schools subject to the hazardous waste management standards.]

Title III of the Federal Superfund Amendments and Reauthorization Act (SARA) requires schools to conduct annual inventories of a comprehensive list of toxic chemicals. Depending on the chemical, different amounts (thresholds) trigger the reporting requirement to local and state emergency planning agencies. Some thresholds (e.g., certain lab chemicals) are as low as 10 pounds; acute hazardous waste thresholds are as low as 1.2 pounds.

In addition, many states have right-to-know laws stricter than federal law (i.e., the list of reportable chemicals may be longer and/or the reporting thresholds lower).

The Hazard Communication Standard, administered by OSHA (Occupational Safety and Health Administration) and state governments, requires employers to notify employees about exposure to chemicals in the workplace, proper handling, and potential risk. Designation of a coordinator, posting of notices, labeling of products, updates of safety data sheets, employee training, and recordkeeping also are necessary.

In order to comply, each school annually should survey what toxic substances are stored and used. The definition of toxin is broad: "any substance which has yielded positive evidence of acute or chronic health hazards in human or animal testing."

Almost all chemicals can cause harm if not handled properly. A piece of sodium improperly stored, for example, is explosive on contact with body moisture. Unknown or unused materials should be classified as accurately as possible and disposed of in an appropriate manner. (Private disposal contractors or state agencies should handle hazardous or questionable materials.)

Identified materials should be separated in terms of their storage compatibility. Public agencies supply charts listing information on potentially hazardous chemical interactions.

Another concern is art supplies (e.g., rubber cement, magic markers, and spray paints). Young children, ignorant of the potential risk, easily misuse these materials. In 1986 the U.S. Public Interest Research Group recommended removal of turpentine, spray paints, rubber cement, and chemical-based marking pens from elementary schools. In secondary schools, chemicals such as benzoyl peroxide, carbon disulfide, and ethers are not dangerous when properly handled but could explode if old and dried. School boards might ban, limit, or allow the use of these chemicals only with instructions on proper handling.

Effective policies and regulations involve as many employees as possible in the inventory and education process. Another policy recommendation is to separate the science (or photography) labs from classrooms, whenever possible. Also, policies might call for the coordination of purchasing, computer inventory, and proper storage of chemical supplies.

Policies also should outline a procedure for cleaning up spills of potentially hazardous materials—inside and outside the building. A "spill response plan" designates a person in each building (e.g., a chemistry teacher or custodian) to be responsible for the cleanup. Convenient access to chemical neutralization kits and absorbent material such as kitty litter is another component of risk reduction. Medical and infectious wastes also call for special procedures.

Public disclosure of information on hazardous materials often results in community pressure to reduce or eliminate unnecessary on-site use of chemi-

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cals and to have a specific management plan for the necessary ones.

Indoor Air Quality. Tobacco smoke. Pollens. Fungi, mold, and spores. Perfumes and aerosol sprays. Insect parts, feces, bacteria, and viruses. Vapors and gases. Called "sick school syndrome," these pollutants—depending on the amount and toxicity—can cause ill health effects and flu-like outbreaks among students and staff. From 15 to 20 percent of schoolchildren suffer from some form of allergy, a condition making them particularly vulnerable.

Indoor air quality soon could be the target of federal regulation. A bill has been introduced to "authorize a national program to reduce the threat to human health posed by exposure to contaminants in the air indoors." Although the problem was suspected for some time, only in 1981 did researchers develop monitors small enough to show that some persons are exposed to higher levels of pollutants indoors than outdoors.

Schools with poor quality have six remedial options: remove the contaminant or reduce its release; contain the source; filter or purify the pollutant when the building is vacant; educate and train students and staff on ways to improve air quality; and dilute the pollutant or increase ventilation (exhaust polluted air, filter recycled air, intake outdoor air).

According to Shirley Hansen (*School Business Affairs*, April 1989), policies that address problems of indoor air quality with a single solution (ventilation) are ineffective.

"You must know the contaminants. Simple ventilation doesn't reduce some pollutants . . . and it can increase some contamination levels." The air flow patterns in the building, not just the amount of air exchange with the outside, is crucial information. Also, humidity affects both the growth of biological contaminants and the human response to them. Other factors include the uniformity of the heating/cooling patterns and maintenance of the climate control systems (otherwise outdoor contamination can travel into a building, e.g., by way of dirty condensation pans); soil quality and vegetation; building materials; and proximity of roads.

Another culprit is energy conservation programs. The energy crisis of the 1970s prompted schools to undertake cost-cutting measures that led to higher concentrations of pollutants. Examples include turning off the energy system on weekends and vacations; closing air intakes; constructing "airtight" buildings with permanently shut windows and central air shafts; and reducing the number of exhaust vents and substituting recycled air.

Environmental policies might embrace a preventative strategy during school construction and renovation by "engineering out materials and conditions known to contribute to indoor air pollution," says Hansen. Improper design (e.g., placing a fresh-air intake opposite a cafeteria exhaust or inadequate ventilation in art rooms, workshops, and labs) can cause dramatic deterioration of indoor air. New building materials need a chance to "breathe" in order to eliminate manufacturing chemicals.

Policies can establish a "ready-to-go" testing program should a school's occupants start to complain. A building is defined as "sick" if 20 percent or more of students and staff exhibits symptoms persisting for more than two weeks.

The Anne Arundel (MD) Public Schools developed a comprehensive handbook on indoor air quality. Ronald Beckett, assistant superintendent for support services, describes the positive effect of a management plan:

> Without an overall plan and comprehensive set of guidelines, we constantly found ourselves in a reactive posture, leaping from issue to issue as problems arose. More and more of our limited funds and resources were being consumed. Development of the handbook offered us an opportunity to draw on the expertise of many public and private agencies and firms to produce a document that will make us proactive in this critical area.

PCBs. Produced in the United States between 1929 and 1988, PCBs found widespread use as coolants and lubricants in transformers and other electrical equipment (e.g., fluorescent light fixtures installed before 1978). The new material replaced more combustible insulating fluids and significantly reduced the risk of building fires. For many years PCB use expanded to plastics, adhesives, paints and varnishes, pesticides, newsprint, and caulking compounds.

PCBs became an issue in 1966 when evidence showed their accumulation in the food chain and storage in human body fat. PCBs were blamed for a poisoning of food supplies in Japan in the 1970s; soon after, U.S. companies voluntarily limited production to materials used in sealed electrical equipment.

Nonetheless, existing electrical transformers nationwide contain an estimated 750 million pounds of PCBs. (Federal regulations now prohibit the installation of transformers with PCBs and call for removal of some types of equipment by Oct. 1, 1990.)

Although PCBs are located in sealed electrical compartments, leaks or ruptures can occur, resulting in releases. PCBs have been found in soil, waterways, unapproved disposal sites, and concrete near electrical transformers (both indoors or outdoors). PCB spills and leaks are subject to federal reporting and cleanup regulations.

The environmental risk to plant and animal life is well documented. But the corresponding threat to human health of trace amounts of PCBs is controversial. According to a *New York Times* article (July 2, 1989), "Scientists disagree over what effects these trace chemicals have on human health. Studies of waterfowl that eat chemically contaminated fish have detected a small but growing incidence of birth defects including crossed beaks and club feet, lip tumors, and liver cancer." Risk could increase over time, however, because PCBs accumulate in the body, resulting in concentrations high enough to be detectable in mother's milk.

One of the most serious risks associated with PCBs comes not from the substance itself but from by-products released during transformer fires. Ignited, PCBs form toxic compounds that travel easily in smoke and fumes.

Hotspots: asbestos, radon, lead

Although the extent of risk posed by each of these chemicals in the school environment is controversial, nonetheless, schools are feeling policy and budget pressure from a number of state and federal mandates. Responding to perceived public demands for zero risk, agencies have called for schools to conduct thorough inspections, develop management/response plans, and notify local communities. In each area of risk, boards should consider having a community relations and involvement effort to bolster public understanding of and support for the plan. [Please see *Tips and Techniques* for more details.]

Asbestos. *Facts:* In the 1920s the fibrous silicone mineral was hailed as a wonder product because of its fireproofing, insulating, strength, decoration, and soundproofing qualities. The material that was applied generously for 25 cents a square foot in the '60s, now costs about $25 a square foot to remove.

The dangers of asbestos came to light after workers in shipyards, mines, and industry suffered unusually high death and disease rates. Intense daily exposure in the 1940s later resulted in asbestosis, lung cancer, and mesothelioma. In the '70s environmental agencies added asbestos to the list of hazardous materials.

Nonfriable asbestos is soft but turns friable given time, water exposure, or damage. Friable asbestos is dry, crumbly, and potentially airborne. Microscopic particles remain suspended in air for as long as several days (to be inhaled by building occupants).

Once ingested, asbestos remains in the lungs. Children are at higher risk because of their breathing patterns (more mouth breathing, higher levels of activity and metabolism) and because particles remain in their bodies for a longer time than does asbestos inhaled by adults. Smoking dramatically increases the risk of contracting asbestos diseases.

About one-third of the nation's school buildings contain friable asbestos. Under AHERA (Asbestos Hazard Emergency Response Act of 1987), boards face decisions on removal or containment. According to an *Environment-News Record* article (June 2, 1988), "There is currently a split in the asbestos industry on how to handle the asbestos. Some . . . recommend removal. But there are also advocates of encapsulation or encasement, including EPA to some extent."

"Removal is never prohibited, nor is it absolutely required," says EPA official David Kling. "Where asbestos is undamaged or nonfriable, it's better to manage it in place until a major renovation is undertaken. Where material is friable, or crumbling, removal may be in order," he adds. Sloppy removal projects can be dangerous, leaving the levels of airborne asbestos three to four times higher than before the removal.

Although boards may choose the "least burdensome" response, the action "shall be sufficient to protect human health and the environment." Management options include maintenance, repair, encapsulation, enclosure, or removal.

If the board decides not to remove the material immediately, repair and containment supplies should be reviewed carefully to insure proper insulation as well as the use of a hard shell protective outer coating.

Regulation. As of July 9, 1989, school management plans for asbestos took effect (and must proceed in a timely fashion). Plans should include identification and classification of asbestos, response actions, selection of an asbestos coordinator, posting of notices, employee training, proper cleaning of designated areas, reinspections, and notification.

EPA fines range from $5,000 to $25,000 a day, although penalties will be credited to the district's compliance budget. As an example of possible legal action, EPA officials filed a complaint against the New York City Board of Education and seven contractors citing failure to notify the agency of asbestos removal in 130 schools (*The New York Times*, Aug. 23, 1989).

NSBA's recent survey of 671 school systems in 44 states indicates that 98 percent have submitted management plans on time to state officials. Schools overwhelmingly used private contractors for inspections but intended to use in-house personnel for on-going abatement.

Costs are expected to nearly double the original EPA estimates of $3 billion. To make matters worse, many states have not funded and staffed programs to process the management plans and to certify contractors. According to *Education Week* (June 1, 1989), only six states have full accreditation programs underway.

Many school systems have encountered problems fulfilling the obligations, ranging from hiring a certified inspector/contractor, obtaining funding, ..and finding affordable liability insurance to price gouging. Several states are considering legislation to allow schools to independently finance asbestos removal (many states and localities restrict school long-term debt to certain categories) or earmark a portion of the tax levy for asbestos removal. Another matter of concern: schools need access to an insurance pool and protection against lawsuits if school officials perform asbestos-related duties responsibly and hire approved contractors. States could grant schools immunity or limit the size of the claim in asbestos-related cases.

Firms called "risk retention groups" offer a type of asbestos liability protection where schools "buy in" (to form the necessary capital reserves) as well as pay annual premiums. However, schools are not protected should bankruptcy occur because the business is not classified as insurance.

Policy Response. Policies might include a housing contingency plan for students should asbestos removal not be completed on schedule or another unforeseen situation occurs. The unexpected happened in Auburn Enlarged City School District (NY) during the cleanup of an $11.8 million renovation and asbestos removal project when asbestos was reintroduced into the building's ductwork. Students (3,000 in grades 6-12) had to be reassigned to half-day sessions at two middle schools.

Issue. **Are the new regulations appropriate to the health risks of low-level exposure to asbestos?** Some say no. "Most asbestos work is performed to make real estate more marketable or to appease the frantic parents of school children . . . The reality is that the potential risk, if any, is very small," says New York City attorney Daniel J. Sitomer, whose firm specializes in asbestos and construction issues. (*Environment-News Record*, June 2, 1988)

Although asbestos workers suffered fatal diseases from high levels of extended exposure (10,000 times greater than levels found in normal indoor room air), no comparable rise in asbestos-related deaths has occurred among office workers and custodians exposed since then during building renovations and maintenance. (*Fortune*, June 6, 1988).

But others argue that low-level exposure is a preventable risk. Asbestos related symptoms develop typically 20 to 30 years after the initial exposure. The cancers are usually fatal, leading to death within a year after diagnosis. According to Dr. Irving Selikoff's study of asbestos industry workers, no level of exposure is considered safe.

Schools, where asbestos products are found in ceilings, floor tiles, and other building materials, potentially expose students and staff on a daily basis to the carcinogen.

"Investigators have found," says environmental lawyer Daniel A. Speights, "asbestos levels in some damaged schools that exceed even industrial safety standards."

Radon. *Facts*: In the 1950s researchers determined the natural colorless odorless gas emitted from the breakdown of uranium was a U.S. health hazard after miners developed lung cancer at higher than normal rates. Radon is second only to cigarettes as the leading cause of cancer deaths.

Children are particularly at risk. "Combined exposure from homes and schools may pose a significant risk," according to the Senate Committee on En-

vironment and Public Works report. EPA officials estimate the risk of getting lung cancer from radon exposure to the maximum recommended level of 4 pCi/L over a 70-year lifetime to be 1 in 100.

Homes and schools are vulnerable due to leaks or cracks in foundations or contaminated water supplies. Radon in water is released when the water comes in contact with air. Although the exact amount depends on the water supply, in general the volume increases the higher the temperature and greater the surface area of the water coming out of the tap.

Remedial action includes spraying water into a contained air space; introducing air bubbles into the water; and storing water in a tank until the radon has decayed.

An EPA study of 3,000 schoolrooms in 16 states found elevated levels of radon throughout the United States. Radon levels can be reduced by increasing ventilation, sealing earthen areas or cracks in the building foundation, changing the pressurization in the building, or installing exhaust pipes.

Regulation: The Radon Pollution Control Act of 1988 authorizes EPA to work with schools to develop radon pollution programs; to survey radon levels in buildings; to serve as a national clearinghouse; and to certify radon control technology.

Policy Response: Testing a two-level building of 25 rooms costs between $750 and $1,500. Radon levels can vary widely throughout the school so all areas should be tested including gyms, storage areas, trailers, libraries, and labs. Readings of more than 4 pCi/L in any location warrant further testing. If initial readings are confirmed, remedial action is necessary. Correction usually costs less than $10,000 per building.

Lead. *Facts*: The Academy of Pediatrics has identified lead as one of the greatest toxic hazards facing young children today. Although the amount causing harm varies according to the child, the potential effects on the brain, nervous system, hearing, and kidneys are severe and irreversible. Not only do children absorb more lead than do adults because of their lower body weight, but the lifetime accumulation is greater because of their age.

Virtually all water systems contain lead because of the lead in pipes and solder. The amount flowing out of the "tap" depends on the acidity of the water (the more acidic, the more lead), age of plumbing, and time the water stands in the pipes. Minerals in drinking water, after about four years, form composites in pipes and joints that are thick enough to trap lead particles, thus adding to lead concentrations in the water.

Regulation: Federal regulations on lead govern its presence in gasoline, paint, soldering, and most recently drinking water. The Lead Contamination Control Act of 1988 requires the repair, replacement, or disconnection of school water coolers with lead-lined tanks or lead-based parts in contact with the water supply. Furthermore, the law calls for state action to test for and reduce high levels of lead in school drinking water. Finally, the law directs states to conduct a screening program to identify children with high lead levels.

The standards apply to schools with their own water supplies as well as to those using public water systems. Schools in the first category are responsible for taking action to reduce excessive lead levels in water coming into the building, whereas schools obtaining their water from public water systems are accountable for lead levels in water coming out of the "tap."

Schools should collect samples from all sources of drinking water and submit them for testing at EPA certified labs (cost is $7 to $30 per sample). EPA recently reduced the acceptable levels of lead from 50 to 20 parts per billion (ppb). EPA recommends limiting lead in source waters to 5 ppb and contamination from corrosive plumbing to 10 ppb with the long-term goal of elimination.

Water coolers, bubblers, drinking fountains, ice machines, and bottled water dispensers all are at risk of lead contamination and should be tested. Coolers could have lead-lined holding tanks or lead parts and should be disconnected until it's determined that none of these components come in contact with the water supply. (This fall the products will be recalled.)

Solder in many pipe joints contains a high percentage of lead that is released on contact with copper. (The Safe Water Drinking Act Amendment of 1986 banned copper pipe joints with a lead content of more than .2 percent.) Now lead-free materials must be used to repair or to install plumbing.

Under the Lead Contamination Control Act, states were to have initiated school testing and assistance programs by July 31, 1989. School boards have 15 months from enactment of the state program to start general corrective action. However, the final deadline for the repair, removal or replacement of contaminated water coolers is March 1, 1990. Similar to the asbestos regulations, testing results must be publicized and made available for inspection.

Policy response: If tests show high levels of lead, school officials can switch to bottled water until remedial action is taken (this will incur substantial expense depending on the size of the school population and length of time the alternative water supply is needed). Other options include frequent flushing of toilets and running of water to prevent lead buildup (this might not be feasible in areas where water is scarce); steam cleaning of pipes; and adding chemicals to the water supply.

Other sources of lead should not be ignored. Inspect all buildings occupied before 1977 for cracked, chipped, or deteriorating paint. Test representative samples of all paint. If the lead content is higher than .5 percent (paint-chip analysis) or more than 1 milligram per square centimeter (x-ray fluorescence), take corrective action. Otherwise continue to regularly inspect the material. Removal and disposal of lead paint, like asbestos, should be performed only by trained workers.

Art and instructional supplies should contain no more than a trace of lead. Labels—in conformance with the Art Supplies Labeling Act of 1988—should indicate the lead content of each product.

If a thorough audit of drinking water and lead-based products in each school indicates action is needed, officials should develop a remediation plan, reassure parents about the risk levels, and publicize the long-range management strategy.

Risk outside the buildings

In addition to these "inside" environmental risks, others are associated with the school site itself, grounds, and environment.

For example, obtaining land and locating school sites can introduce environmental concerns. Policies on site evaluation should call for a thorough environmental audit that includes onsite testing of nearby soil and water supplies as well as a history of the prior uses of both the property and adjacent areas (e.g., existence of underground tanks). Such data is crucial to minimize the potential liability of a school board should toxic materials be detected in the future.

The information should be publicized before land is purchased or a site determined. Full disclosure might prevent

negative community reaction at a later date. For instance, in Ohio County (KY) parents threatened to keep children home if a school was built on land less than two miles from an old coal mine where aluminum companies had buried industrial wastes.

Several other "outside" environmental risks have caused problems for school boards across the country. Although the effect of the electric and magnetic fields generated by power lines is controversial among scientists, parents in Palm Beach County (FL) filed a civil action to prevent the school board from building a new school close to high voltage lines. Also, a consumer group has claimed that fine white play sand contains asbestos-related particles, although the Consumer Products Safety Commission disagreed.

Underground Storage Tanks. Schools with refueling facilities for vehicle fleets and oil heating systems are at risk of contaminating nearby soil and groundwater because of leaking underground tanks. Federal and state regulations direct schools, for example, to monitor underground tanks and clean-up any contamination, making the choice of a tank management strategy essential.

The vehicle fuel tanks covered by the federal legislation enacted in 1984 do not have to be entirely underground; in fact, only ten percent of tank volume must be beneath the soil. Owners of underground tanks storing petroleum products must notify the state agency of the number, age, type, location, and current use.

Tanks installed 20 or more years ago probably are leaking. EPA estimates that over 25 percent of all tanks are in this category. Even if no leakage is detected now, odds are overwhelming that releases will occur in the future unless special features were incorporated in the original design or have been added (e.g., secondary containment or cathodic protection).

Both in-ground repair and replacement of tanks are complex and costly efforts. Furthermore, owners must maintain financial reserves adequate to cleanup contamination and to compensate third parties for bodily injury and property damage.

School officials should ask several questions regarding underground tanks:

- Are underground tanks needed at all? Are commercial fueling stations a viable alternative? In the case of heating oil, some school systems are switching from oil to gas products.
- Is conversion to above-ground tanks possible? Although above-ground tanks are not federally regulated, states and localities often impose restrictions. Before installing this equipment, officials should review local ordinances and fire codes.
- Can the number or size of tanks be limited (i.e., remove older tanks) by implementing better management techniques and inventory control?

Vehicle Emissions. Most school buses are classified as medium duty and thus not subject to EPA regulations set to take effect in 1994 mandating either new engine designs to reduce emissions or the use of alternative fuels (e.g., methanol or compressed natural gas). But several states are taking action even though to date the gas mileage of cleaner burning fuels is lower and storage and handling are problematic.

Pesticides. These toxic chemicals effectively eliminate cockroaches, rodents, and stinging insects as well as unwanted weeds. Pesticides, however, can cause ill effects (e.g., headaches, dizziness, hyperactivity, and learning disabilities) particularly on students with smaller body weights and immature immune systems.

According to Kevin Thorpe, (*Tennessee School Board Journal*, Summer 1988) schools can use nontoxic alternatives and still maintain quality landscapes and pest-free facilities. A nonchemical approach, however, (because of its emphasis on sanitation and maintenance) calls for a commitment by school employees and students. While this program reduces health risks from pesticides it can, at the same time, increase health risks from other sources (e.g., accidents with weed mowers and inadvertent tripping of rodent traps).

In an Integrated Pest Management System a risk/cost/benefit evaluation is made before the application of chemicals in the school environment. Three criteria are relevant: effectiveness, cost, and effects on people and the environment. The use of pesticides, although allowed, is ranked lowest on the list of options.

Thorpe describes a two-step process. First, monitor and determine the levels of pests and the tolerable amount of damage that could occur. Then, describe available nonchemical options and conduct a school and community education program focusing on good sanitation; building and ground maintenance; disposal of wastes; cleaning of trash; repair of leaks and cracks in building foundations; nontoxic mechanical rodent traps; weed control by mowing, hoeing, and mulching; and use of low toxicity chemicals such as boric acid, desiccating dusts, and insecticidal soaps.

Environmental risk reduction

School policy on environmental risk reduction can do more than implement state and federal requirements. An environmental policy provides an opportunity for school officials to make the practice of and education about risk reduction a school district goal. Policies that incorporate an environmental auditing process and regular communication with the school community on environmental issues will provide a sound foundation for environmental management in the '90s.

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in the workplace. Excellence characterizes a school or college that sets high expectations and goals for all learners, then tries in every way possible to help students reach them."

Legislators in that state funded ten school and district research and development sites for the new "learner outcomes" system. Performance guides the implementation of curriculum requirements; multiple assessment criteria are used to measure achievement.

Policies on teacher evaluation, some say, should include "multiple student outcomes" as one indicator of teacher performance. According to an article in *Education USA*, "Although there is general agreement that using student outcomes as a basis for teacher evaluation is a valid idea, experts [say] the outcomes on which the evaluation is based must be revised and broadened to be effective."

Other policy issues to consider are the importance of (family, teacher, and school) ***expectations*** on student learning, a factor that can overcome risk conditions (e.g., socioeconomic status) and ***accelerated learning*** (rather than remedial instruction) for at-risk or underachieving students, an innovation that is proving successful in Illinois, Utah, Missouri, and California.

Tips 'n Techniques

Environment, schools, and the media

No matter how evenhandedly the information is presented to the news media, most school officials open the next day's newspaper expecting the worst. UNSAFE LEVELS OF LEAD FOUND IN SCHOOLS. The evening before, staff had reported "slightly elevated" levels of lead at 3 of the district's 15 schools; however, after running the water fountains for 15 minutes, the levels dipped to below EPA standards. If additional testing confirmed the positive results, the fountains or pipes would be replaced. Until then, custodians planned to flush the standing water each morning before students arrived.

Although most of these facts appeared later in the article, the impression in the headline and opening paragraphs set the tone of public reaction. Following this type of story—or a similar one on asbestos, PCBs, or radon—board members and school staff might brace themselves for a rash of phone calls from worried parents. Petitions and calls for action soon could follow.

No matter how disproportionate the public reaction, it's a natural one, says EPA official John Moore, speaking at a national pesticide research conference in May 1988. "When you put cancer, children, and pesticides [or asbestos, radon, lead . . . .] together in one package, it's no wonder the public reacts with unease and fear."

Prepare for controversy

School officials should prepare to deal with many controversial environmental issues in the coming years. For example, with school asbestos management plans now in place, signs announcing CAUTION, ASBESTOS. HAZARDOUS. DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT (in areas with friable asbestos) and other required forms of notification make the topic a visible and potentially controversial one. The same procedures can be expected in regulations dealing with radon, lead, and PCBs.

Especially in matters of health and safety, the news media tend to the sensational. Add a complex and often ambiguous scientific backdrop to the scene and the news reports seem particularly alarming because of their simplistic tone.

Victor Cohen and Dorothy Nelkin, writing in *Health Risks and the Press*, describe the biases of the press as the following:

- an "alarms make news" mindset (i.e., bad news is good news; good news is no news);
- the over-interpretation and oversimplification of data;
- taking a polarized approach to the problem at the expense of relating accurate information;
- reliance on sources who are "colorfully or quickly quotable;"
- the lack of sustained (especially positive) follow-up stories.

Although these factors affect all stories to some extent, "they pose special dilemmas for those reporting on the complex and uncertain problems relating to health risks," writes Nelkin. "Few reporters have the training and time to do the research that is necessary to place potential health hazards in an appropriate technical context . . . . and to deal adequately with the uncertainties inherent in environmental disputes."

Board initiative

What can board members and administrators do to reduce public apprehension about environmental risk?

- Understand that environmental risk must be handled differently than many areas of school policy. Advises Nelkin, "There is far more to the communication of risk than simply the disclosure of technical information, and far more to the response to risk information than simply technical understanding."
- Know enough about the issues so that you can explain them—in simple language—during board meetings, press conferences, school functions, and public meetings. Have a working knowledge of state and federal requirements, current and planned policy, budget constraints, and risk factors.
- Listen to your audience, be available; acknowledge, don't deny their fears. Be honest, don't pretend try to answer questions you don't know.
- Be frank about the ambiguity of the research data and be emphatic on the board's intent that children and staff occupy buildings that are as safe as other public buildings and homes.
- Take the offensive. Don't allow a sensational news story to be the only information distributed to the community-at-large. In addition to school press releases, consider purchasing space in the local newspapers, requesting time on a local cable station, producing a school videotape on the topic, writing about the issue in school parent and employee newsletters, and asking for time at parent-teacher association or booster club meetings.
- Communicate with school activists. Club sponsors, parent volunteers, parent-teacher association and booster club officers, and school committee and council members usually are community opinion leaders. Establish a communications network through a newsletter, meetings, or telephone contact with these influentials.
- Involve the public in decisions on appropriate response actions. Whether through local school advisory councils or a district-wide committee, the involvement of students, parents, staff, and community members in the decision-making process will boost both their level of information about the issues and their support for the board's program. Committee work offers a vehicle for discussing facts on budget realities and conflicting scientific studies, concerns that might not find their way into the news reports. Committee members then by word-of-mouth or as emissaries to other school and community meetings can encourage others to take a balanced view. ■